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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,578	06/12/2001	Sung-Sun Park	678-650 (P9673)	4794

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EXAMINER

NGUYEN, QUYNH H

ART UNIT PAPER NUMBER

2642

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/879,578	Applicant(s) PARK, SUNG-SUN	
	Examiner Quynh H Nguyen	Art Unit 2642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2001.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-7 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiyosawa et al. (U.S. Patent 6,187,514) in view of Preker (U.S. Patent 5,598,469).

Regarding claims 1 and 3, Kiyosawa et al. teach a key film (Fig. 1, substrate 40) having a plurality of upper protrusions in contact with bottom surfaces of the key tops, a plurality of lower protrusions as contact points spaced (Fig. 1 and col. 5, line 61 through col. 6, line 6) from metal domes (Fig. 1, dome sections 21); and a key frame inserted into the recesses of the key film (Fig. 1, substrate 40) and having at least one spacer (col. 3, lines 62-8 and col. 8, lines 14-26). However, Kiyosawa et al. do not teach a plurality of key tops arranged in tight contact in a matrix of rows and columns.

Preker teaches a plurality of key tops (all buttons) extend up to point on the operation side of the housing adjacent to a display 13 (col. 4, lines 22-24). Each button 6 is arranged in tight contact of rows (col. 3, lines 52-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the arrangement of the key tops in tight contact, as taught by Preker, in Kiyosawa's system in order to eliminate the spaces between the

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buttons. Thus, mutual interference between the operations of buttons can be avoided, and the outer dimensions of the instrument housing are to be miniaturized.

Regarding claim 2, Kiyosawa et al. teach the key frame is fabricated by die casting (col. 2, lines 61-63).

3. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiyosawa et al. (U.S. Patent 6,187,514) in view of Preker (U.S. Patent 5,598,469) and further in view of Ala-Lehtimaki et al. (U.S. Patent 5,877,709).

Claims 4-5 and 7 are rejected for the same reasons as discussed above with respect to claim 1. However, Kiyosawa et al. do not teach an upper casing frame having an inner surface treated with a conductive material and an engaging boss extended from a predetermined portion of the bottom surface of the upper casing frame to be engaged with a main board by a screw, the surface of the engaging boss being treated with a conductive material to contact the key frame.

Aka-Lehtimaki et al. teach the plate (Fig. 3, 23) treated with conductive material (conductive plate) (col. 3, lines 30-34); an engagement boss (Fig. 4, embossment 25) support the metal plate to be engaged with a main board by a dome-shaped 24, the surface of the engaging boss being treated with a conductive material (col. 3, line 48 through col. 4, line 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the mounting structure that treated with conductive material, as taught by Aka-Lehtimaki, in Kiyosawa's system in order to prevent

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Electrostatic Discharge and other electromagnetic interference the may cause interference in mobile phones. For example, the electrostatic discharges have been shown when pressing a key through the keyboard.

Regarding claim 6, Aka-Lehtimaki et al. teach the key tops are formed of a conductive material (col. 1, lines 36-42).


4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quynh H. Nguyen whose telephone number is 703-305-5451. The examiner can normally be reached on Monday - Thursday from 6:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar, can be reached on (703) 305-4731. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

qhn

Quynh H. Nguyen
December 9, 2004


AHMAD F. MATAR
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2700